TRANSMITTAL OF APPEAL BRIEF (Large Entity)

Docket No. POU919990176US1

In Re Application Of: **Glassen et al.**

Application No.	Filing Date	Examiner	Customer No.	Group Art Unit	Confirmation No.
09/539,024	March 30, 2000	Justin King	43639	2111	7679

Invention: **MEASURING UTILIZATION OF INDIVIDUAL COMPONENTS OF CHANNELS**

COMMISSIONER FOR PATENTS:

Transmitted herewith ~~is~~ is the Appeal Brief in this application, with respect to the Notice of Appeal filed on **October 25, 2004**

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- ☐ A check in the amount of the fee is enclosed.
- ☐ The Director has already been authorized to charge fees in this application to a Deposit Account.
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Blanche E. Schiller
Signature

Dated: **December 23, 2004**

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Appellants:	Glassen et al.	Group Art Unit:	2111
Serial No.:	09/539,024	Examiner:	Justin King
Filed:	March 30, 2000	Appeal No.:	
Title:	MEASURING UTILIZATION OF INDIVIDUAL COMPONENTS OF CHANNELS		

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Brief of Appellants

Dear Sir:

This is an appeal from a final rejection, mailed July 22, 2004, rejecting claims 1, 3-21, 23-42 and 44-54 of the above-identified application. The Appeal Brief is due within two months from the date the Notice of Appeal was received at the United States Patent and Trademark Office. Since appellants' postcard indicates that the Notice of Appeal was received on October 25, 2004, this Brief is initially due on or before December 25, 2004. Therefore, this Appeal Brief is timely filed. The Brief is accompanied by a transmittal letter authorizing the charging of appellants' deposit account for payment of the requisite fee set forth in 37 C.F.R. §1.11(c).

Appellants' brief is being filed after the effective date of the final BPAI Rules, September 13, 2004, and, therefore, the format and content of appellants' brief is in compliance with the requirements set forth in 37 CFR §41.37(c). If appellants' brief does not comply with the requirements set forth in 37 CFR §41.37(c), appellants request notification of the reasons for noncompliance and the opportunity to file an amended brief pursuant to 37 CFR §41.37(d).

Real Party in Interest

This application is assigned to International Business Machines Corporation by virtue of an assignment executed by the co-inventors and recorded with the United States Patent and Trademark Office at reel 011124, frame 0320, on August 10, 2000. Therefore, the real party in interest is International Business Machines Corporation.

Related Appeals and Interferences

To the knowledge of the appellants, appellants' undersigned legal representative, and the assignee, there are no other appeals or interferences, which will directly affect or be directly affected by or have a bearing on the Board's decision in the instant appeal.

Status of Claims

This patent application was filed on March 30, 2000 with the U.S. Patent and Trademark Office. As filed, the application included 54 claims, of which 12 were independent claims (i.e., claims 1, 15, 20, 21, 33, 38, 39, 40, 41, 42, 50 and 54).

In an initial Office Action, dated September 4, 2002, claims 18 and 36 were objected to under 37 C.F.R. 1.75(c) as being of improper dependent form, and claims 1-54 were rejected under 35 U.S.C. 103(a) as being unpatentable over Galbraith et al. (U.S. Patent No. 5,265,240).

A Response to Office Action was filed on January 6, 2003, in which claims 20, 38, 41 and 54 were amended.

On March 27, 2003, a final Office Action was issued. The improper dependent rejection was removed, and the §103(a) rejection of claims 1-54 was replaced by a 35 U.S.C. 102(b) rejection. In particular, claims 1-54 were rejected under 35 U.S.C. 102(b) as being anticipated by Galbraith et al. Appellants filed a Response to the Final Office Action on June 2, 2003, in which no claims were amended.

Appellants received an Advisory Action, dated June 24, 2003, which indicated that the request for consideration had been considered, but did not place the application in condition for allowance. A Notice of Appeal to the Board of Patent Appeals and Interferences was filed on July 1, 2003, accompanied by a one-month extension of time request, which were received on July 3, 2003.

On October 3, 2003, appellants filed an Appeal Brief, along with a one-month extension of time request, which were received on October 6, 2003.

Responsive to the Appeal Brief filed on October 6, 2003, appellants received another Office Action, dated January 30, 2004. In this Office Action, claims 1-5, 10-16, 18-25, 30-34 and 36-54 were rejected under 35 U.S.C. 102(b) as being anticipated by Galbraith et al.; claims 6-7, 17, 26-27 and 35 were rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Galbraith and Blasciak (U.S. Patent No. 4,845,615); and claims 8-9 and 28-29 were rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Galbraith and LANQuest by Novell®. Appellants filed a Response to the Office Action on April 30, 2004 and amended claims 1, 3, 10, 11, 15, 16, 18, 19, 21, 23, 30, 31, 33, 34, 36, 37, 39, 40, 42, 47, 48 and 50-53 and canceled claims 2, 22 and 43.

Appellants then received another Final Office Action, mailed July 22, 2004, in which claims 1, 3-5, 10-16, 18-21, 23-25, 30-34, 36-42 and 44-54 were rejected under 35 U.S.C. 103(a)

as being unpatentable over Galbraith et al. in view of Gutta et al. (U.S. Patent No. 6,122,693) or Patterson (U.S. Patent No. 4,149,241); claims 6-7, 17, 26-27 and 35 were rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Galbraith in view of Gutta and Blasciak or in view of Patterson and Blasciak; and claims 8-9 and 28-29 were rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Galbraith, Gutta and LANQuest by Novell®, or the combination of Galbraith, Patterson and LANQuest by Novell®. In response, appellants mailed a Response to Final Office Action on September 22, 2004 providing remarks, but no claim amendments.

Appellants received an Advisory Action dated October 19, 2004, which indicated that the request for consideration had been considered, but did not place the application in condition for allowance. It also indicated that the proposed amendments would not be entered. However, appellants did not propose any amendments in the Response to Final Office Action.

A Notice of Appeal to the Board of Patent Appeals and Interferences was filed on October 22, 2004 and received at the U.S. Patent and Trademark Office on October 25, 2004.

The status of the claims is as follows:

Claims allowed – None;

Claims objected to – None;

Claims rejected – 1, 3-21, 23-42 and 44-54; and

Claims canceled – 2, 22 and 43.

Appellants are appealing the rejection of claims 1, 3-21, 23-42 and 44-54.

Status of Amendments

Appellants' remarks proffered in the Response to the final Office Action, dated September 22, 2004 were considered. However, no claim amendment was effectuated by the Response. The claims as set out in Appendix A include all prior amendments.

Summary of Claimed Subject Matter

In one aspect of the invention, appellants claim a method (e.g., independent claim 1), systems (e.g., independent claims 21 and 39) and a program storage device (e.g., independent claim 42) for determining utilization of channel components of a computing environment (e.g., page 6, lines 1-6; page 15, lines 7-15; and page 16, lines 13-17 of appellants' specification). The method includes, for instance, obtaining individualized measurement data for each component of selected multiple components of a plurality of components of a channel (see, e.g., FIG. 4, 408, 406, 410; FIG. 5, 500; FIG. 7, 704; page 6, lines 1-6; page 15, lines 7-15; and page 16, lines 13-17 and p. 19, lines 3-11 of appellants' specification); and using the individualized measurement data to determine utilization of each component of at least two components of the selected multiple components (see, e.g., FIG. 7, 708; page 19, lines 16-22; FIG. 8, 806; page 24, lines 26-28; page 25, lines 1-27).

Independent claim 21 includes mean plus function language. The functions are described above, including reference to the specification and drawings. This logic is performed by one or more processors, such as those described with reference to FIG. 1.

In another aspect of the invention, appellants claim a method (e.g., independent claim 15), systems (e.g., independent claims 33 and 40) and a program storage device (e.g., independent claim 50) for obtaining information associated with channel components of a computing environment. The method includes, for instance, selecting a channel within the computing environment to be monitored, the channel comprising a plurality of components (see,

e.g., FIG. 4, 408, 406, 410; FIG. 5, 500; FIG. 7, 704; page 6, lines 1-6; page 15, lines 7-15; and page 16, lines 13-17 of appellants' specification); and obtaining individualized data for each component of at least two components of the plurality of components (see, e.g., FIG. 4, 408, 406, 410; FIG. 5, 500; FIG. 7, 704; page 6, lines 1-6; page 15, lines 7-15; and page 16, lines 13-17 of appellants' specification).

Independent claim 33 includes means plus function language. The functions are described above, including references to the specification and drawings. This logic is performed by one or more processors, such as those described with reference to FIG. 1.

In yet another aspect of the present invention, appellants claim a method (e.g., independent claim 20), systems (e.g., independent claims 38 and 41) and a program storage device (e.g., independent claim 54) for determining utilization of channels of a computing environment, in which the computing environment includes a plurality of logical partitions. The method includes, for instance, obtaining, on behalf of a logical partition involved in determining utilization of a channel, measurement data for the channel, the measurement data being representative of use of the channel by the logical partition and representative of use by one or more other logical partitions of the plurality of logical partitions (e.g., FIGs. 1-3; page 6, lines 6-12; page 9, line 7-11; page 10, lines 5-9, 14-18; page 11, lines 10-13; and page 28, lines 18-22); and using the measurement data to determine utilization of the channel (see, e.g., FIG. 7, 708; page 19, lines 16-22; FIG. 8, 806; page 24, lines 26-28; page 25, lines 1-7; and page 28, lines 18-22).

Independent claim 38 includes means plus function language. The functions are described above, including references to the specification and drawings. This logic is performed by one or more processors, such as those described with reference to FIG. 1.

As yet a further aspect, dependent claims 12, 32 and 49 recite that the measurement data is further representative of use of the selected component by one or more other logical partitions

of the computing environment (see, e.g., FIGs. 1-3; page 6, lines 6-12; page 9, line 7-11; page 10, lines 5-9, 14-18; page 11, lines 10-13; and page 28, lines 18-22).

Moreover, in another aspect, dependent claim 14 recites that measurement data is obtained using a channel path measurement facility executing in a first mode and another channel path measurement facility is activated within the computing environment in a second mode (see, e.g., page 18, lines 1-6). The channel path measurement facility in the first mode and the channel path measurement facility in the second mode are concurrently active (see, e.g., page 18, lines 1-6).

In further aspects, dependent claims 6-7, 17, 26-27 and 35 indicate that the value of an operational characteristic is a maximum value for that operational characteristic (see, e.g., FIG. 9b) and that one or more operational characteristics of an internal bus include a maximum number of bus cycles (see, e.g., FIG. 9b, 912).

Moreover, in dependent claims 8 and 28, the one or more operational characteristics include a maximum number of channel work units (see, e.g., FIG. 9b, 914); and in dependent claims 9 and 29, it is recited that the one or more operational characteristics of an external link include at least one of a maximum number of written data units, a maximum number of read data units and the size of the data units (e.g., FIG. 9b, 916-920).

Grounds of Rejection to Be Reviewed On Appeal

1. Claims 1, 3-5, 10-16, 18-21, 23-25, 30-34, 36-42 and 44-54 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Galbraith et al. (U.S. Patent No. 5,265,240) in view of Gutta et al. (U.S. Patent No. 6,122,693) or Patterson (U.S. Patent No. 4,149,241);

2. Claims 6-7, 17, 26-27 and 35 stand rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Galbraith in view of Gutta and Blasciak (U.S. Patent No. 4,845,615) or in view of Patterson and Blasciak; and

3. Claims 8-9 and 28-29 stand rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Galbraith, Gutta and LANQuest by Novell®, or the combination of Galbraith, Patterson and LANQuest by Novell®.

Argument

I. Rejection under 35 U.S.C. 103(a) over U.S. Patent No. 5,265,240 to Galbraith in view of U.S. Patent No. 6,122,693 to Gutta et al. or U.S. Patent No. 4,149,241 to Patterson

A. Claims 1, 3-5, 10-16, 18-21, 23-25, 30-34, 36-42 and 44-54:

Claims 1, 3-5, 10-16, 18-21, 23-25, 30-34, 36-42 and 44-54 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Galbraith et al. (U.S. Patent No. 5,265,240) in view of Gutta et al. (U.S. Patent No. 6,122,693) or Patterson (U.S. Patent No. 4,149,241). Appellants respectfully submit that the rejection of these claims is erroneous and respectfully request reversal of this rejection for at least the reasons below.

1. Independent Claims 1, 21, 39 and 42:

In one aspect, appellants' invention is directed to measuring the utilization of individual components of channels. That is, a channel has a plurality of individual components and each selected individual component is monitored and measured to determine the utilization of that particular component of the channel. This is advantageous because the modern channels, such as FICON channels, are able to multiplex many I/O operations at the same time and can pipeline the execution of channel programs, and thus, measuring the utilization of individual components of a channel facilitates planning for those channels. Further details regarding a channel that has a plurality of components are described below.

Referring to FIG. 4 of appellants' specification (which is included in Appendix B for convenience), as one example, channel 116 includes a plurality of components, such as, for

instance, a channel processor 408, an internal PCI bus 406 from the processor to the adapter, and an adapter card 410 (e.g., a fibre channel adapter). The channel processor is responsible for interpreting the channel command words and moving data to and from host memory to channel memory 400. The PCI bus moves instructions and data from channel processor storage 400 to adapter 410. The fibre channel adapter moves instructions and data from the PCI bus to the external fabric attached control units 412. Depending on the type of channel programs executed by the system, each of the three components of the channel may reach the limits of its capacity separately.

For example, small channel programs that include a few channel command words, but transfer a huge amount of data, have very little use of channel processor 408, but cause a very high utilization on internal PCI bus 406. However, a very long channel program that includes many channel command words, but only transfers very small amounts of data, requires very high utilization of the channel processor, but little use of the internal PCI bus and fibre channel adapter. Thus, no single number can adequately represent the channel utilization, since the components of the channel perform different tasks and can reach saturation at different points, depending on the nature of the I/O request for the applications using the channel. Further, many different applications can execute simultaneously on the channel, each with different characteristics and stressing different components of the channel at the same time. Therefore, in order for a customer to perform capacity planning and to correctly identify the resource of the channel that may be the bottleneck, each component of the channel is reported on separately. This allows the customer to identify the applications' I/O characteristics that can be added without saturating the channel, or that can be removed to avoid saturation.

In one particular aspect, appellants claim a method (e.g., claim 1) for determining utilization of channel components of a computing environment. The method includes, for instance, obtaining individualized measurement data for each component of selected multiple components of a plurality of components of a channel; and using said individualized measurement data to determine utilization of each component of at least two components of said

selected multiple components. Thus, in appellants' claimed invention, measurement data is obtained for each component of selected multiple components of a channel and that measurement data is individual to each component. Further, the individualized measurement data is used to determine utilization of each component of at least two components of the selected multiple components. Thus, utilization is determined for particular components of a channel. This is very different from the teachings of Galbraith, Gutta or Patterson, either alone or in combination.

For example, Galbraith teaches obtaining a single utilization value for a channel, as a whole. This is explicitly stated throughout Galbraith. For instance, in the Abstract, it states: "Provides a method for measuring the busy utilization time for I/O channel used by any of plural operating systems (OSs) in a CEC." The utilization time is measured for the entire I/O channel. Although Galbraith mentions a channel processor, the channel processor and the channel are considered one in the same in Galbraith. The channel utilization measured in Galbraith is for the whole channel. Galbraith simply treats the channel as a whole, and is not concerned with the individual components of the channel. There is no discussion in Galbraith of obtaining utilization data for multiple individual components of a channel.

The failure of Galbraith to describe, teach or suggest appellants' claimed elements of obtaining individualized measurement data for each component of selected multiple components of a channel and using the individualized measurement data to determine utilization of each component of at least two components of the channel is explicitly admitted in the Office Action (see, e.g., pp. 2-3 of the Final Office Action). Thus, Galbraith is combined with either Gutta or Patterson. However, neither Gutta nor Patterson overcomes the deficiencies of Galbraith.

Gutta, for instance, makes no mention of a channel or the individual components of a channel. Further, Gutta fails to describe, teach or suggest obtaining individualized measurement data for multiple components of a channel.

Instead, Gutta describes monitoring a PCI bus. While appellants' channel includes, in one example, an internal PCI bus, the description in Gutta of a PCI bus is not a teaching or suggestion of a channel or the individual components of a channel. There is no mention in Gutta of a channel. There is no teaching or suggestion in Gutta of the specific components that would make up a channel. Since Gutta fails to describe, teach or suggest a channel or the multiple components of a channel, it follows that there is no teaching or suggestion in Gutta of obtaining individualized measurement data for each component of selected multiple components of a channel, as claimed by appellants.

Similarly, there is no teaching or suggestion in Patterson of a channel, as described by appellants, or of the individual components of a channel. Like Gutta, there is no teaching or suggestion in Patterson of, at the very least, obtaining individualized measurement data for each component of selected multiple components of a channel, as claimed by appellants.

Since it is admitted in the Office Action that Galbraith fails to teach or suggest appellants' claimed element of obtaining individualized measurement data for each component of selected multiple components of a channel, and since neither Gutta nor Patterson make any mention of multiple components of a channel, much less obtaining measurement data for each component of the multiple components, appellants respectfully submit that, for at least this reason, the combination of the references fails to teach or suggest this claimed element. That is, since each reference fails to teach or suggest this claimed element, the combination also fails to teach or suggest this element.

It is indicated in the Office Action that both Gutta and Patterson are cited because they teach monitoring a bus. Appellants respectfully submit that the teaching of monitoring a bus is not a teaching or suggestion of obtaining individualized measurement data for each component of multiple components of a channel. The mere teaching of monitoring a bus is not a teaching or suggestion of monitoring a bus, when it is a part of a channel. There is no discussion in Gutta or Patterson of how to separate a bus from other components of a channel to measure utilization of

just the bus. Further, there is no teaching or suggestion in Gutta or Patterson of individually monitoring multiple components of a channel. These aspects are not taught or suggested in any of the references. Again, Gutta and Patterson are not even concerned with channels, as described by appellants. Thus, Gutta and Patterson do not overcome the deficiencies of Galbraith.

Further, appellants respectfully submit that to state that Galbraith teaches measurement of a channel processor, and Gutta and Patterson teach monitoring a bus, and thus, one of ordinary skill in the art would combine those teachings to obtain appellants' invention, is hindsight reconstruction of appellants' invention. There is no recognition in any of the references of the problem addressed by appellants or how to address the problem. There is no discussion of individually monitoring the separate components of a channel.

Moreover, there is no teaching or suggestion in the references themselves to combine the references. Yet further, there is no motivation to combine the references because there is no recognition in any of the references that the multiple components of a channel should be individually monitored. It is appellants' invention that addresses individually monitoring components of a channel. Prior to appellants' invention, the channel was measured as one entity. None of the references, either alone or in combination, recognizes the problem addressed by appellants or addresses that problem. None of the references, either alone or in combination, teaches or suggests appellants' claimed invention.

Based on the foregoing, appellants respectfully submit that independent claim 1, as well as independent claims 21, 39 and 42, are patentable over the combination of Galbraith in view of Gutta or Patterson.

2. Independent Claims 15, 33, 40 and 50:

As a further example, appellants claim a method of obtaining information associated with channel components of a computing environment (e.g., independent claim 15). The method includes, for instance, selecting a channel within the computing environment to be monitored,

the channel comprising a plurality of components; and obtaining individualized data for each component of at least two components of the plurality of components. Thus, in this aspect of appellants' claimed invention, individualized data is obtained for each component of at least two components of a plurality of components of a channel. Again, this is very different from the teachings of Galbraith, Gutta or Patterson, either alone or in combination.

For example, Galbraith fails to describe, teach or suggest at least appellants' claimed element of obtaining individualized data for each component of at least two components of a plurality of components of a channel. This is explicitly admitted in the office action (see, e.g., page 4 of the Final Office Action). Galbraith, unlike appellants' claimed invention, teaches the obtaining of a single utilization value for a channel, as a whole. This deficiency of Galbraith is not overcome by either Gutta or Patterson.

Neither Gutta nor Patterson make any mention of a channel or the individual components of a channel. Further, neither describes, teaches or suggests obtaining individualized data for multiple components of a channel.

Again, although Gutta and Patterson teach monitoring a bus, appellants respectfully submit that the teaching of monitoring a bus is not a teaching or suggestion of obtaining individualized data for each component of multiple components of a channel. The mere teaching of monitoring a bus is not a teaching or suggestion of monitoring a bus, when it is part of a channel. There is no discussion in Gutta or Patterson of how to separate a bus from other components of a channel to obtain data of just the bus. Further, there is no teaching or suggestion in Gutta or Patterson of individually obtaining data of multiple components of a channel. These aspects are not taught or suggested in any of the references. Since Gutta and Patterson are not even concerned with channels, and do not describe, teach or suggest obtaining individualized data for each component of at least two components of a plurality of components of a channel, Gutta and Patterson do not overcome the deficiencies of Galbraith.

Further, appellants respectfully submit that to state that Galbraith teaches measurement of a channel processor, and Gutta and Patterson teach monitoring a bus, and thus, one of ordinary skill in the art would combine those teachings to obtain appellants' invention, is hindsight reconstruction of appellants' invention. There is no recognition in any of the references of the problem addressed by appellants or how to address the problem.

Moreover, there is no teaching or suggestion in the references themselves to combine the references. Yet further, there is no motivation to combine the references because there is no recognition in any of the references that multiple components of a channel should be individually monitored. It is appellants' invention that addresses individually monitoring components of a channel. Prior to appellants' invention, the channel was measured as one entity. None of the references, either alone or in combination, recognizes the problem addressed by appellants or addresses that problem. None of the references, either alone or in combination, teaches or suggests appellants' claimed invention.

Based on the foregoing, appellants respectfully submit that independent claim 15, as well as independent claims 33, 40 and 50, are patentable over the combination of Galbraith in view of Gutta or Patterson.

3. Independent Claims 20, 38, 41 and 54:

In a further aspect of the present invention, appellants claim a method of determining utilization of channels of a computing environment, in which the computing environment includes a plurality of logical partitions (e.g., claim 20). The method includes, for instance, obtaining, on behalf of a logical partition involved in determining utilization of a channel, measurement data for the channel, the measurement data being representative of use of the channel by the logical partition and representative of use by one or more other logical partitions of the plurality of logical partitions; and using the measurement data to determine utilization of the channel. Thus, in this aspect of appellants' claimed invention, the measurement data

obtained on behalf of a particular logical partition is measurement data representative of use by a plurality of logical partitions (e.g., the logical partition involved in determining the utilization, as well as one or more other logical partitions). This is very different from the teachings of Galbraith, Gutta and Patterson, either alone or in combination.

Although Galbraith teaches a plurality of logical partitions, Galbraith does not teach or suggest that measurement data obtained on behalf of a particular logical partition is representative of use by multiple logical partitions. Instead, in Galbraith, the measurement data for each logical partition is exclusive for that logical partition. This is explicitly stated in Galbraith. For example, in Col. 2, lines 12-14, it is stated: "The two OSs must be provided measurements which do not indicate the other OSs use of the shared I/O resources." Therefore, the measurements provided in Galbraith are for a single operating system (i.e., a single logical partition), and not for multiple logical partitions, as claimed by appellants. Thus, appellants respectfully submit that Galbraith does not describe, teach or suggest appellants' claimed invention.

Appellants respectfully submit that they are not simply claiming measuring the utilization for each logical partition, but instead, explicitly claiming that the measurement data obtained for a particular logical partition is representative of use of the channel by multiple logical partitions. That is, the measurement data is representative of use of the channel by the logical partition involved in determining utilization of the channel, as well as use by one or more other logical partitions. There is no description, teaching or suggestion in Galbraith that the measurement data being obtained for a particular logical partition represents use of a channel by a plurality of logical partitions. Instead, in Galbraith, each logical partition only obtains the information for that particular logical partition.

Moreover, neither Gutta nor Patterson overcomes the deficiencies of Galbraith. Neither Gutta nor Patterson makes any mention whatsoever of logical partitions or of obtaining measurement data for logical partitions. Thus, neither Gutta nor Patterson teaches or suggests, at

the very least, appellants' claimed element of obtaining, on behalf of a logical partition involved in determining utilization of a channel, measurement data for the channel, in which the measurement data is representative of use of the channel by the logical partition and representative of use by one or more other logical partitions.

Since Galbraith does not describe, teach or suggest obtaining, on behalf of a logical partition involved in determining utilization of a channel, measurement data for the channel, the measurement data being representative of use of the channel by the logical partition and representative of use by one or more other logical partitions, and since Gutta and Patterson fail to even mention a logical partition, appellants respectfully submit that the combination of the references does not teach or suggest appellants' claimed invention. Thus, appellants respectfully request an indication of allowability for independent claim 20, as well as independent claims 38, 41 and 54.

4. Dependent Claims 3-5, 10-14, 16, 18-19, 23-25, 30-32, 34, 36-37, 44-49, and 51-53

The dependent claims are patentable for the same reasons as the independent claims, as well as for their own additional features. The separate patentability of various of the dependent claims is discussed below. Appellants respectfully request an indication of allowability for all dependent claims.

a. Dependent Claims 12, 32 and 49:

Appellants respectfully submit that dependent claims 12, 32 and 49 are patentable for similar reasons as the independent claims from which they depend, as well as for similar reasons as independent claims 20, 38, 41 and 54, and for their own additional features. Appellants respectfully submit that the rejection of these claims is erroneous and respectfully request an indication of allowability for these claims.

In particular, in one example, dependent claim 12 recites that the measurement data, which comprises data representative of use of a selected component of the at least two components by a logical partition associated with the channel, is further representative of use of the selected component by one or more other logical partitions of the computing environment. Thus, the measurement data is not only representative of use of the selected component by the logical partition involved in determining the utilization, but as well as with use by one or more other logical partitions. This is not described, taught or suggested in Galbraith, Gutta or Patterson.

For instance, Galbraith does not teach or suggest that measurement data obtained on behalf of a particular logical partition is representative of use by multiple logical partitions. Instead, in Galbraith, the measurement data for each logical partition is exclusive for that logical partition. This is explicitly stated in Galbraith. For example, in Col. 2, lines 12-14, it is stated: "The two OSs must be provided measurements which do not indicate the other OSs use of the shared I/O resources." Therefore, the measurements provided in Galbraith are for a single operating system (i.e., a single logical partition), and not for multiple logical partitions, as claimed by appellants. Thus, appellants respectfully submit that Galbraith does not describe, teach or suggest appellants' claimed invention.

Appellants respectfully submit that they are not simply claiming measuring the utilization for each logical partition, but instead, are explicitly claiming that the measurement data obtained for a particular logical partition is representative of use of the channel by multiple logical partitions. That is, the measurement data is representative of use of the channel by the logical partition involved in determining utilization of the channel, as well as use by one or more other logical partitions. There is no description, teaching or suggestion in Galbraith that the measurement data being obtained for a particular logical partition represents use of a component by a plurality of logical partitions. Instead, in Galbraith, each logical partition only obtains the information for that particular logical partition.

Moreover, neither Gutta nor Patterson overcomes the deficiencies of Galbraith. Neither Gutta nor Patterson makes any mention whatsoever of logical partitions or of obtaining measurement data for logical partitions. Thus, neither Gutta nor Patterson teaches or suggests, at the very least, appellants' claimed element of obtaining, on behalf of a logical partition involved in determining utilization of a channel, measurement data for the channel, in which the measurement data is representative of use of the channel by the logical partition and representative of use by one or more other logical partitions.

Since Galbraith does not describe, teach or suggest obtaining, on behalf of a logical partition involved in determining utilization of a channel, measurement data for the channel, the measurement data being representative of use of the channel by the logical partition and representative of use by one or more other logical partitions, and since Gutta and Patterson fail to even mention a logical partition, appellants respectfully submit that the combination of the references does not teach or suggest appellants' claimed invention. Thus, appellants respectfully request an indication of allowability for dependent claim 12, as well as dependent claims 32 and 49.

b. Dependent Claim 14:

Appellants respectfully submit that the rejection of claim 14 is erroneous, and that claim 14 is patentable for similar reasons as the independent claim from which it depends, as well as for its own additional features.

As one example, dependent claim 14 recites that the obtaining of measurement data is performed using a channel path measurement facility executing in a first mode and another channel path measurement facility is activated within the computing environment in a second mode, wherein the channel path measurement facility in the first mode and the channel path measurement facility in the second mode are concurrently active. (See, e.g., page 18, lines 1-5.)

Appellants respectfully submit that this is not described, taught or suggested in Galbraith, Gutta or Patterson, either alone or in combination.

There is no discussion, teaching or suggestion in Galbraith of a plurality of channel path measurement facilities. While Galbraith discusses a single channel path measurement facility (e.g., Col. 12, lines 4-68) that can perform various operations (Col. 13, lines 10-66), it does not discuss or suggest the concurrent activation of multiple channel path measurement facilities. This is missing from Galbraith.

Further, since Galbraith fails to teach or suggest concurrent activation of multiple channel path facilities, it follows that Galbraith fails to describe, teach or suggest that one facility is activated in one mode and the other facility is activated in another mode.

In support of the rejection, it is stated in the Office Action:

> In addition, Galbraith also discloses several different modes for the measuring instructions (Column 12, lines 8-21; Column 13, lines 14-66). Thus, Galbraith discloses a plurality of measurement instructions concurrently executing in different modes.

Appellants respectfully submit that they are not claiming different instruction modes of a single facility, but instead, are claiming a plurality of channel path measurement facilities. Galbraith fails to describe, teach or suggest such a plurality of channel path measurement facilities. Further, Galbraith makes no mention of one channel path measurement facility being active in one mode, while another channel path measurement facility is concurrently active in another mode.

Gutta nor Patterson overcome the deficiencies of Galbraith. Neither of those references describe channel path measurement facilities nor do they make any mention of one channel path measurement facility being active in one mode, while another channel path measurement facility is concurrently active in another mode. Even the Office Action only relies on Galbraith for this

teaching. However, as described above, appellants respectfully submit that Galbraith fails to teach or suggest this claimed element. Since Galbraith fails to teach or suggest at the very least a plurality of channel path measurement facilities or one channel path measurement facility being active in one mode, while another channel path measurement facility is concurrently active in another mode, and since neither Gutta nor Patterson overcome these deficiencies, appellants respectfully request an indication of allowability for dependent claim 14.

II. Rejection under 35 U.S.C. 103(a) over the combination of Galbraith in view of Gutta and Blasciak (U.S. Patent No. 4,845,615) or in view of Patterson and Blasciak

Dependent claims 6-7, 17, 26-27 and 35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Galbraith in view of Gutta and Blasciak or in view of Patterson and Blasciak. Appellants respectfully submit that the rejection of these claims is erroneous and respectfully request reversal of this rejection.

Appellants respectfully submit that these dependent claims are patentable for the same reasons as the claims from which they depend, as well as for their own additional features. The additionally cited art, Blasciak, does not overcome the deficiencies of any of the other cited art. Without acquiescing to the characterization of Blasciak contained in the Final Office Action, appellants note that Blasciak was cited for features of dependent claims and does not address the above noted deficiencies of any of the other cited art. Thus, appellants respectfully request an indication of allowability for claims 6-7, 17, 26-27 and 35.

III. Rejection under 35 U.S.C. 103(a) over the combination of Galbraith, Gutta and LANQuest by Novell® or the combination of Galbraith, Patterson and LANQuest by Novell®

Dependent claims 8-9 and 28-29 are rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Galbraith, Gutta and LANQuest by Novell® or the

combination of Galbraith, Patterson and LANQuest by Novell®. Appellants respectfully submit that the rejection of these claims is erroneous and respectfully request reversal of this rejection.

These dependent claims are patentable for the same reasons as the independent claims from which they depend, as well as for their own additional features. The additionally cited art, LANQuest, does not overcome the deficiencies of any of the other cited art. As a matter of fact, LANQuest specifically describes a system level task in which they do not attempt to isolate and measure individual variables. This is the opposite of appellants' claimed invention. Thus, appellants respectfully request an indication of allowability of these dependent claims.

Conclusion

Appellants respectfully request reversal of the §103(a) rejections of claims 1, 3-21, 23-42 and 44-54 set forth in the Final Office Action. Appellants respectfully submit that their claimed invention is not obvious over Galbraith in view of Gutta or Patterson nor in view of LANQuest by Novell® nor Blasciak.

For all of the above reasons, appellants allege error in rejecting their claims as obvious over the applied art. Accordingly, reversal of all rejections is respectfully requested.

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Appendix A

1. A method of determining utilization of channel components of a computing environment, said method comprising:

obtaining individualized measurement data for each component of selected multiple components of a plurality of components of a channel; and

using said individualized measurement data to determine utilization of each component of at least two components of said selected multiple components.

3. The method of claim 1, further comprising obtaining one or more operational characteristics of a selected component of said at least two components.

4. The method of claim 3, wherein said using further comprises employing said one or more operational characteristics to determine said utilization of said selected component.

5. The method of claim 4, wherein said obtaining measurement data comprises obtaining said measurement data at a plurality of predefined intervals, and wherein said using comprises:

determining an average change in the measurement data over at least two intervals of said plurality of predefined intervals; and

dividing said average change by a value of at least one of said one or more operational characteristics.

6. The method of claim 5, wherein said value is a maximum value for that operational characteristic.

7. The method of claim 3, wherein said selected component comprises an internal channel bus, and said one or more operational characteristics of said internal bus comprise a maximum number of bus cycles.

8. The method of claim 3, wherein said selected component comprises a channel processor, and said one or more operational characteristics of said channel processor comprise a maximum number of channel work units.

9. The method of claim 3, wherein said selected component comprises an external link of said channel, and said one or more operational characteristics of said external link comprise at least one of a maximum number of written data units, a maximum number of read data units, and a size of said data units.

10. The method of claim 1, wherein a component of said at least two components comprises one of an internal bus of said channel, a channel processor and an external link of said channel.

11. The method of claim 1, wherein the channel is associated with a logical partition of said computing environment involved in the determining utilization, and wherein the measurement data comprises data representative of use of a selected component of the at least two components by said logical partition.

12. The method of claim 11, wherein the measurement data is further representative of use of said selected component by one or more other logical partitions of said computing environment.

13. The method of claim 1, wherein said obtaining measurement data is performed using a channel path measurement facility executing in a first mode.

14. The method of claim 13, wherein another channel path measurement facility is activated within said computing environment in a second mode, and wherein said channel path measurement facility in said first mode and said channel path measurement facility in said second mode are concurrently active.

15. A method of obtaining information associated with channel components of a computing environment, said method comprising:

selecting a channel within said computing environment to be monitored, said channel comprising a plurality of components; and

obtaining individualized data for each component of at least two components of said plurality of components.

16. The method of claim 15, wherein said obtaining individualized data comprises obtaining one or more operational characteristics of said at least two components.

17. The method of claim 16, wherein at least one of said one or more operational characteristics comprises a maximal value of said operational characteristic.

18. The method of claim 15, wherein said obtaining individualized data comprises obtaining measurement data usable in determining utilization of each component of said at least two components.

19. The method of claim 15, wherein said obtaining individualized data comprises:

obtaining one or more operational characteristics of said at least two components; and

obtaining individualized measurement data for each component of said at least two components, wherein said one or more operational characteristics and said individualized measurement data are used to determine utilization of each component of said at least two components.

20. A method of determining utilization of channels of a computing environment, said computing environment comprising a plurality of logical partitions, and said method comprising:

obtaining, on behalf of a logical partition involved in determining utilization of a channel, measurement data for the channel, said measurement data being representative of use of said channel by the logical partition and representative of use by one or more other logical partitions of said plurality of logical partitions; and

using said measurement data to determine utilization of the channel.

21. A system of determining utilization of channel components of a computing environment, said system comprising:

means for obtaining individualized measurement data for each component of selected multiple components of a plurality of components of a channel; and

means for using said individualized measurement data to determine utilization of each component of at least two components of said selected multiple components.

23. The system of claim 21, further comprising means for obtaining one or more operational characteristics of a selected component of said at least two components.

24. The system of claim 23, wherein said means for using further comprises means for employing said one or more operational characteristics to determine said utilization of said selected component.

25. The system of claim 24, wherein said means for obtaining measurement data comprises means for obtaining said measurement data at a plurality of predefined intervals, and wherein said means for using comprises:

means for determining an average change in the measurement data over at least two intervals of said plurality of predefined intervals; and

means for dividing said average change by a value of at least one of said one or more operational characteristics.

26. The system of claim 25, wherein said value is a maximum value for that operational characteristic.

27. The system of claim 23, wherein said selected component comprises an internal channel bus, and said one or more operational characteristics of said internal bus comprise a maximum number of bus cycles.

28. The system of claim 23, wherein said selected component comprises a channel processor, and said one or more operational characteristics of said channel processor comprise a maximum number of channel work units.

29. The system of claim 23, wherein said selected component comprises an external link of said channel, and said one or more operational characteristics of said external link comprise at least one of a maximum number of written data units, a maximum number of read data units, and a size of said data units.

30. The system of claim 21, wherein a component of said at least two components comprises one of an internal bus of said channel, a channel processor and an external link of said channel.

31. The system of claim 21, wherein the channel is associated with a logical partition of said computing environment involved in the determining utilization, and wherein the measurement data comprises data representative of use of a selected component of the at least two components by said logical partition.

32. The system of claim 31, wherein the measurement data is further representative of use of said selected component by one or more other logical partitions of said computing environment.

33. A system of obtaining information associated with channel components of a computing environment, said system comprising:

means for selecting a channel within said computing environment to be monitored, said channel comprising a plurality of components; and

means for obtaining individualized data for each component of at least two components of said plurality of components.

34. The system of claim 33, wherein said means for obtaining individualized data comprises means for obtaining one or more operational characteristics of said at least two components.

35. The system of claim 34, wherein at least one of said one or more operational characteristics comprises a maximal value of said operational characteristic.

36. The system of claim 33, wherein said means for obtaining individualized data comprises means for obtaining measurement data usable in determining utilization of each component of said at least two components.

37. The system of claim 33, wherein said means for obtaining individualized data comprises:

means for obtaining one or more operational characteristics of said at least two components; and

means for obtaining individualized measurement data for each component of said at least two components, wherein said one or more operational characteristics and said individualized measurement data are used to determine utilization of each component of said at least two components.

38. A system of determining utilization of channels of a computing environment, said computing environment comprising a plurality of logical partitions, and said system comprising:

means for obtaining, on behalf of a logical partition involved in determining utilization of a channel, measurement data for the channel, said measurement data being representative of use of said channel by the logical partition and representative of use by one or more other logical partitions of said plurality of logical partitions; and

means for using said measurement data to determine utilization of the channel.

39. A system of determining utilization of channel components of a computing environment, said system comprising:

at least one processor adapted to obtain individualized measurement data for each component of selected multiple components of a plurality of components of a channel; and

at least one processor adapted to use said individualized measurement data to determine utilization of each component of at least two components of said selected multiple components.

40. A system of obtaining information associated with channel components of a computing environment, said system comprising:

a channel comprising a plurality of components; and

at least one processor adapted to obtain individualized data for each component of at least two components of said plurality of components.

41. A system of determining utilization of channels of a computing environment, said computing environment comprising a plurality of logical partitions, and said system comprising:

at least one processor adapted to obtain, on behalf of a logical partition involved in determining utilization of a channel, measurement data for the channel, said measurement data being representative of use of said channel by the logical partition and representative of use by one or more other logical partitions of said plurality of logical partitions; and

at least one processor adapted to use said measurement data to determine utilization of the channel.

42. At least one program storage device readable by a machine, tangibly embodying at least one program of instructions executable by the machine to perform a method of determining utilization of channel components of a computing environment, said method comprising:

obtaining individualized measurement data for each component of selected multiple components of a plurality of components of a channel; and

using said individualized measurement data to determine utilization of each component of at least two components of said selected multiple components.

44. The at least one program storage device of claim 42, wherein said method further comprises obtaining one or more operational characteristics of said selected component.

45. The at least one program storage device of claim 44, wherein said using further comprises employing said one or more operational characteristics to determine said utilization of said selected component.

46. The at least one program storage device of claim 45, wherein said obtaining measurement data comprises obtaining said measurement data at a plurality of predefined intervals, and wherein said using comprises:

determining an average change in the measurement data over at least two intervals of said plurality of predefined intervals; and

dividing said average change by a value of at least one of said one or more operational characteristics.

47. The at least one program storage device of claim 42, wherein a component of said at least two components comprises one of an internal bus of said channel, a channel processor and an external link of said channel.

48. The at least one program storage device of claim 42, wherein the channel is associated with a logical partition of said computing environment involved in the determining utilization, and wherein the measurement data comprises data representative of use of a selected component of the at least two components by said logical partition.

49. The at least one program storage device of claim 48, wherein the measurement data is further representative of use of said selected component by one or more other logical partitions of said computing environment.

50. An article of manufacture, comprising:

at least one computer usable medium having computer readable program code means embodied therein for causing the obtaining of information associated with channel components of a computing environment, the computer readable program code means in the article of manufacture comprising:

computer readable program code means for causing a computer to select a channel within said computing environment to be monitored, said channel comprising a plurality of components; and

computer readable program code means for causing a computer to obtain individualized data for each component of at least two components of said plurality of components.

51. The article of manufacture of claim 50, wherein said computer readable program code means for causing a computer to obtain individualized data comprises computer readable program code means for causing a computer to obtain one or more operational characteristics of said at least two components.

52. The article of manufacture of claim 50, wherein said computer readable program code means for causing a computer to obtain individualized data comprises computer readable program code means for causing a computer to obtain measurement data usable in determining utilization of each component of said at least two components.

53. The article of manufacture of claim 50, wherein said computer readable program code means for causing a computer to obtain individualized data comprises:

computer readable program code means for causing a computer to obtain one or more operational characteristics of said at least two components; and

computer readable program code means for causing a computer to obtain individualized measurement data for each component of said at least two components, wherein said one or more operational characteristics and said individualized measurement data are used to determine utilization of each component of said at least two components.

54. At least one program storage device readable by a machine, tangibly embodying at least one program of instructions executable by the machine to perform a method of determining utilization of channels of a computing environment, said computing environment comprising a plurality of logical partitions, and said method comprising:

obtaining, on behalf of a logical partition involved in determining utilization of a channel, measurement data for the channel, said measurement data being representative of use of said channel by the logical partition and representative of use by one or more other logical partitions of said plurality of logical partitions; and

using said measurement data to determine utilization of the channel.

APPENDIX B

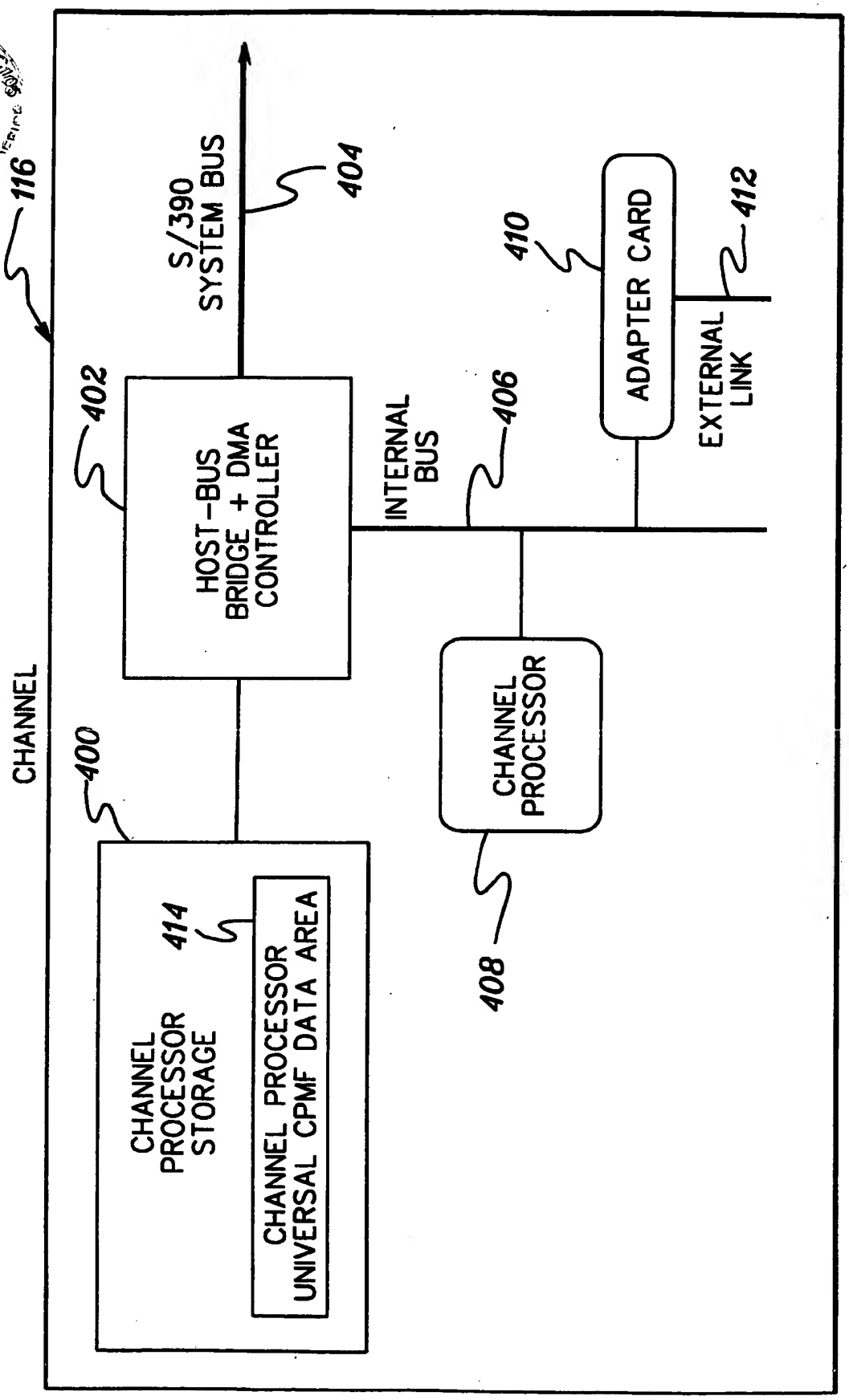

fig. 4